

Amendments to the Claims

Please cancel Claims 7-8. Please amend Claims 1, 2, 5, 6 and 9. Please add new Claims 10-17. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1. (Currently amended) A method of reducing the solubility and bioavailability of heavy metals within air-borne particulate emissions containing heavy metals from air, wastewater and water sources, comprising contacting heavy metal heavy-metal-bearing particulate within particulate emissions after a heavy metal particulate capture unit with at least one complexing agent in an amount effective in reducing the leaching of heavy metal from the particulate emissions particulate and thus reducing particulate the solubility and bioavailability of the heavy metal, wherein the complexing agent does not include lime.
2. (Currently amended) The method of claim 1, wherein the heavy metal complexing agent is selected from the group consisting of precipitants, coagulants, buffer agents, oxidizing agents, reducing agents, magnesium oxide, ~~calcium oxide~~, Portland cement, iodide, potassium iodide, carbon, activated carbon, bone char, activated alumina, aluminum sulfate, potassium permanganate, ferric chloride, ferric sulfate, sulfides, carbonates, silicates, water soluble phosphates, water insoluble phosphates, wet process amber phosphoric acid, wet process green phosphoric acid, coproduct phosphoric acid solution from aluminum polishing, technical grade phosphoric acid, hexametaphosphate, polyphosphate, calcium orthophosphate, superphosphates, triple superphosphates, phosphate fertilizers, phosphate rock, bone phosphate, monocalcium phosphate, monoammonia phosphate, diammonium phosphate, dicalcium phosphate, tricalcium phosphate, trisodium phosphate, salts of phosphoric acid, and combinations thereof.

3. (Original) The method of claim 2, wherein the salts of phosphoric acid are alkali metal salts.
4. (Original) The method of claim 2, wherein the phosphate salt is a trisodium phosphate, dicalcium phosphate, disodium hydrogen phosphate, sodium dihydrogen phosphate, tripotassium phosphate, dipotassium hydrogen phosphate, potassium dihydrogen phosphate, trilithium phosphate, dilithium hydrogen phosphate, lithium dihydrogen phosphate or mixtures thereof.
5. (Currently amended) The method of claim 2, wherein said at least one heavy metal complexing agent includes one phosphate selected from the group consisting of water soluble phosphates, water insoluble phosphates, hexametaphosphate, polyphosphate, calcium orthophosphate, superphosphates, triple superphosphates, phosphate fertilizers, phosphate rock, bone phosphate, monocalcium phosphate, monoammonia phosphate, diammonium phosphate, dicalcium phosphate, tricalcium phosphate, trisodium phosphate, and salts of phosphoric acid is combined with, and an additional heavy metal complexing agent selected from the group consisting of including Portland cement, ~~calcium oxide~~, magnesium oxide, iron, calcium, calcium chloride, potassium chloride, sodium chloride, chlorides, aluminum, sulfates, surfactants, silicates, precipitants, coagulants, reducing agents, oxidizing agents and combinations thereof.
6. (Currently amended) The method of claim 1, wherein the complexing agents are said at least one complexing agent is selected from the non-phosphate group including consisting of polymers, silicates, ~~calcium oxide~~, quicklime, magnesium oxides, surfactants, calcium chloride, sodium chloride, potassium chloride, vanadium, boron, iron, aluminum, sulfates, reducing agents, oxidizing agents, flocculants, coagulants, precipitants, [[or]] and combinations thereof.

7-8. Canceled

9. (Currently amended) ~~A method of reducing the solubility and bioavailability of heavy metals within particulate emissions from air, wastewater and water sources, comprising contacting heavy metal particulate with at least one complexing agent prior to the pollution particulate control device and~~ The method of Claim 1, wherein the step of contacting heavy-metal-bearing particulate with at least one complexing agent is performed at a temperature above ambient in an amount effective in reducing the leaching of heavy metal from the particulate emissions particulate and thus reducing particulate the solubility and bioavailability of the heavy metal.
10. (New) The method of Claim 1, wherein said at least one complexing agent is added into the base of an air emission stack.
11. (New) A method of reducing the solubility and bioavailability of heavy metals within water-borne particulate emissions containing heavy metals, comprising contacting heavy-metal-bearing particulate within particulate emissions after a heavy metal particulate capture unit with at least one complexing agent in an amount effective in reducing the leaching of heavy metal from the particulate emissions and thus reducing the solubility and bioavailability of the heavy metal.
12. (New) The method of Claim 11, wherein the heavy metal complexing agent is selected from the group consisting of precipitants, coagulants, buffer agents, oxidizing agents, reducing agents, magnesium oxide, Portland cement, iodide, potassium iodide, carbon, activated carbon, bone char, activated alumina, aluminum sulfate, potassium permanganate, ferric chloride, ferric sulfate, sulfides, carbonates, silicates, water soluble phosphates, water insoluble phosphates, wet process amber phosphoric acid, wet process green phosphoric acid, coproduct phosphoric acid solution from aluminum polishing,

technical grade phosphoric acid, hexametaphosphate, polyphosphate, calcium orthophosphate, superphosphates, triple superphosphates, phosphate fertilizers, phosphate rock, bone phosphate, monocalcium phosphate, monoammonia phosphate, diammonium phosphate, dicalcium phosphate, tricalcium phosphate, trisodium phosphate, salts of phosphoric acid, and combinations thereof.

13. (New) The method of Claim 12, wherein the salts of phosphoric acid are alkali metal salts.
14. (New) The method of Claim 13, wherein the phosphate salt is a trisodium phosphate, dicalcium phosphate, disodium hydrogen phosphate, sodium dihydrogen phosphate, tripotassium phosphate, dipotassium hydrogen phosphate, potassium dihydrogen phosphate, trilithium phosphate, dilithium hydrogen phosphate, lithium dihydrogen phosphate or mixtures thereof.
15. (New) The method of Claim 12, wherein said at least one heavy metal complexing agent includes one phosphate selected from the group consisting of water soluble phosphates, water insoluble phosphates, hexametaphosphate, polyphosphate, calcium orthophosphate, superphosphates, triple superphosphates, phosphate fertilizers, phosphate rock, bone phosphate, monocalcium phosphate, monoammonia phosphate, diammonium phosphate, dicalcium phosphate, tricalcium phosphate, trisodium phosphate, and salts of phosphoric acid, and an additional heavy metal complexing agent selected from the group consisting of Portland cement; magnesium oxide, iron, calcium, calcium chloride, potassium chloride, sodium chloride, chlorides, aluminum, sulfates, surfactants, silicates, precipitants, coagulants, reducing agents, oxidizing agents and combinations thereof.
16. (New) The method of Claim 12, wherein said at least one complexing agent is selected from the non-phosphate group consisting of polymers, silicates, magnesium oxides,

surfactants, calcium chloride, sodium chloride, potassium chloride, vanadium, boron, iron, aluminum, sulfates, reducing agents, oxidizing agents, flocculants, coagulants, precipitants, and combinations thereof.

17. (New) The method of Claim 11, wherein said at least one complexing agent is added into a discharging pipe of a wastewater treatment plant.